



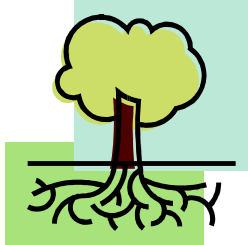
Ware Public Schools

SCIENCE CURRICULUM - Grades K-4

SUBJECT MATTER: Science

Grade: Kindergarten

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Living Things	<p><u>Content</u></p> <ol style="list-style-type: none"> 1. Characteristics of living and non-living things. 2. Animals and plants. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> 1. What makes an object living? Non-living? 2. What is the life cycle of a plant? 3. What 3 things does a plant need to survive? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Classify objects as living/non-living things or once living. 2. Explore basic needs of living things and stages of living things. <p>Vocabulary: Living things, non-living things, once living, life cycle, seed, roots, stem, leaves, air, water, light, suitable environment</p> <div style="text-align: center;">  </div>	<p>Observations</p> <p>Class work</p> <p>Project Assessment</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Give students pictures of both living and non-living things and have them sort them into their appropriate piles and give reasons why they classified the pictures as either living 	<p><u>Silver Burdett Ginn Science Discovery Works: Characteristics of Living Things</u></p> <p><u>Lakeshore Boxed Game</u></p> <ol style="list-style-type: none"> 1. Life Cycles <p>Suggested Activities</p> <ol style="list-style-type: none"> 1. Plant a seed and track its growth in a plant journal. 2. Nature walk – draw pictures of living/non-livings things they found. <p>Suggested Literature</p> <ol style="list-style-type: none"> 1. <u>The Salamander Room</u> by Anne Mazer 2. <u>Bringing the Rain to Kapiti Plain</u> by Verna Aardema 3. <u>Emmett’s Snowball</u> by Ned Miller 4. <u>The Empty Lot</u> by Dale H. Fife 5. <u>How a Seed Grows</u> by Helene Jordan 6. <u>My First Nature Book</u> by Angela Wilkes 7. <u>Nature Spy</u> by Shelly Rotner and Ken Kreisler 	<p><u>Life Science</u></p> <ol style="list-style-type: none"> 1. L.S.1 – Recognize that animals (including humans) and plants are living things that grow, reproduce, and need food, air, and water. <p><u>Physical Science</u></p> <ol style="list-style-type: none"> 1. P.S. 1 – Sort objects by observable properties such as size, shape, color, weight and texture.

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
			<p>or non-living.</p> <p>2. Have students draw a picture of the things needed for a plant/animal to survive.</p>	<p>8. <u>Watch Them Grow</u> by Linda Martin</p> <p>9. <u>Where Butterflies Grow</u> by Joanne Ryder</p> <p>10. <u>The Big Seed</u> by Ellen Howard</p>	
<p>All About Me</p>	<p><u>Content</u></p> <ol style="list-style-type: none"> Five senses. Gathering information. Understand information provided through sensory organs. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What are your five senses? How do you use your five senses in daily life? How can you use your five senses to gather information? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> Identify the five senses and describe how they are used to gather information. Understand that each sensory organ provides different information. Understand that every living thing, including humans, satisfies its basic needs within its habitat. <p>Vocabulary: Sight, smell, taste, touch/feel, and hear, eyes, nose, mouth, hands/feet, ears, sensations, and senses.</p>	<p>Observations</p> <p>Class work</p> <p>Project Assessment</p> <p>Suggestions:</p> <ol style="list-style-type: none"> Give students pictures and have them sort them into which sense would be used for each picture. Students should be able to give reasons for their decisions. 	<p><u>Silver Burdett Ginn Science Discovery Works: Exploring with the Senses</u></p> <p><u>Lakeshore Boxed Game:</u></p> <ol style="list-style-type: none"> Five Senses <p>Suggested Activities</p> <ol style="list-style-type: none"> Smell boxes. Have students make an “All about me” journal with pictures and/or words about their habitat. Tasting table. Texture table. Play “I Spy.” <p>Suggested Literature</p> <ol style="list-style-type: none"> <u>Crinkleroot’s Guide to Knowing the Birds</u> by Jim Arnosky <u>The Listening Walk</u> by Paul Showers <u>Me and My Body</u> by David Evans and Claudette Williams 	<p><u>Life Science</u></p> <ol style="list-style-type: none"> L.S. 6 – Recognize that people and other animals interact with the environment through their senses of sight, hearing, touch, smell and taste. L.S. 8 – Identify ways in which an organism’s habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air and shelter).

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			2. Have children gather information using their senses and graph the results.	4. <u>My Five Senses</u> by Alik 5. <u>Nature Spy</u> by Shelly Rotner and Ken Kreisler 6. <u>Smelling Things</u> by Allan Fowler	
Motions: Push/Pull	<p><u>Content</u></p> <ol style="list-style-type: none"> 1. Motion/movement 2. Forces 3. Changes in motion <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> 1. What makes an object move? 2. What does friction do to the motion of an object? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Comprehend that objects by themselves cannot move unless activated upon an outside force. 2. Describe the various ways objects move and how their shapes and mass are effected by gravitational force. 3. Understand the different way objects move (i.e. zigzag, back and forth, round and round, fast and slow). <p>Vocabulary: Force, push, pull, movement/motion, reaction/action, acceleration, mass, matter, inertia, friction, gravity, Newton’s first, second</p>	<p>Observations</p> <p>Class work</p> <p>Project</p> <p>Assessment</p> <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Observe students at an exploration center including ramps, balls, wheels, planes, pulleys, gears, balances and outside activities. 2. Have students 	<p><u>Silver Burdett Ginn Science Discovery Works: Pushes and Pulls</u></p> <p>Suggested Activities</p> <ol style="list-style-type: none"> 1. Marble Maze 2. Have children investigate motion over smooth and rough surfaces. 3. Have children experiment with the movement of several objects and keep a journal to record their findings. <p>Suggested Literature</p> <ol style="list-style-type: none"> 1. <u>The Balancing Girl</u> by Berniece Rabe 2. <u>Bouncing and Rolling</u> by Terry Jennings 3. <u>Experiment with Movement</u> by Byron Murphy 4. <u>Gilberto and the Wind</u> by Marie Hall Ets 5. <u>Make it Go...</u> by David Evans and Claudette Williams 6. <u>What Makes Things Move?</u> By Althea 	<p><u>Physical Science</u></p> <ol style="list-style-type: none"> 1. P.S. 3 – Describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast and slow. 2. P.S. 4 – Demonstrate that the way to change the motion of an object is to apply a force (give it a push or pull). The greater the force, the greater the change in the motion of the object.

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		and third Laws of Gravity.	work in pairs to have races measuring distances and friction through different surfaces.		
Looking at the Sky	<p><u>Content</u></p> <ol style="list-style-type: none"> Seasons Shadows Constellations Phases of the moon Stars and planets <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What does the sun give to our environment? What are some patterns found in our environment? What is the difference between the day sky and the night sky? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> Develop an understanding of the weather and how it changes daily. Develop an understanding that the sun supplies heat and light to the earth. Identify patterns found in our environment (i.e. seasons, day and night). <p>Vocabulary: Seasons, fall, winter, spring, summer, moon, sun, stars, planets, day, night, weather, rain, snow, sleet, cloudy, sunny, warm/hot, cool/cold, sky, clouds.</p>	<p>Observation</p> <p>Class work</p> <p>Project Assessment</p> <p>Suggestions:</p> <ol style="list-style-type: none"> Keep a journal of the moon for a two-week period. Keep a class weather chart and graph the results. Have each student draw a picture/write of what they 	<p><u>Silver Burdett Ginn Science Discovery Works: Looking at the Sky</u></p> <p><u>Lakeshore Boxed Game:</u></p> <ol style="list-style-type: none"> Weather and Seasons <p>Suggested Activities</p> <ol style="list-style-type: none"> Have children cut pieces of flannel to place on a flannel board to show the daytime sky or the nighttime sky. The children will be able to move the objects to demonstrate the movement of the objects. On a sunny day, have children go outside and trace each other's shadows with sidewalk chalk. Day and Night sequencing cards. <p>Suggested Literature</p> <ol style="list-style-type: none"> <u>Light and Dark</u> by Terry Jennings <u>What the Moon is Like</u> by Franklyn 	<p><u>Earth and Space Science</u></p> <ol style="list-style-type: none"> E.S.3 – Describe the weather changes from day to day and over the seasons. E.S.4 – Recognize that the sun supplies heat and light to the earth and is necessary for life. E.S.5 – Identify some events around us that have repeating patterns, including the seasons of the



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			like to do in each of the four seasons.	Branley 3. <u>Stargazers</u> by Gail Gibbons 4. <u>The Starry Sky</u> by Rose Wyler 5. <u>The Sun is Always Shining Somewhere</u> by Allan Fowler 6. <u>Sun Up, Sun Down</u> by Gail Gibbons	year, day and night.


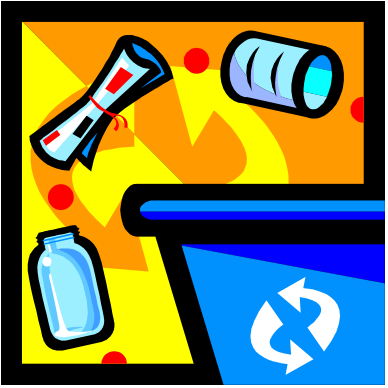


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<p>Properties of Rocks</p>	<p><u>Content:</u></p> <ol style="list-style-type: none"> Identify and describe rocks found in the earth. Identify the components of a mineral? Name the three categories of rocks. Describe how minerals and objects are changes by weather and the environment. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What are the properties of rocks? What are three categories of rocks? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> Identify Igneous, Metamorphic and Sedimentary Rocks. Classify rocks based on size, hardness and color. Place chalk in a container filled with water to see the effects of weathering. <p>Vocabulary: Igneous, Metamorphic, Sedimentary, rocks, mineral, weathering, environment, absorb, evaporate, shape, texture and soil.</p>	<p>Classwork and Observations</p> <p>Project Assessment</p> <p>Suggestions:</p> <ol style="list-style-type: none"> Have the children collect different types of rocks and then sort them by type. Place a piece of chalk in a container filled with water. Have each child take a turn shaking it. This will replicate weathering in nature. Have children sort rocks based 	<p><u>Silver Burdett Ginn Science Discovery Works: Earth's Land and Water</u></p> <p>Lakeshore Learning Kit</p> <p><i>Where Does Sand Come From?</i> (Coronet ISBN 0-3880-9260-2)</p> <p><i>Rock Collecting</i> by Roma Gans</p>	<p>Earth and Space Science E.S. 1 Recognize that water, rocks, soil and living organisms are found on the earth's surface.</p> <p>Physical Science P.S.1 Sort objects by observable properties such as size, shape, color, weight and texture.</p>

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			on different physical characteristics.		
Weather and Seasons	<p><u>Content</u></p> <ol style="list-style-type: none"> Identify the different types of weather. Name the four seasons. Describe the changes plants go through when the weather changes. Identify the changes animals go through when the weather changes. Describe the changes water goes through as the temperature changes. Understand that the movement of air creates wind. Describe how the sun gives us heat. <p><u>Essential Questions</u></p>	<p>Students will be able to:</p> <ol style="list-style-type: none"> Give examples of how weather changes? Identify the four seasons. Give characteristics of the seasons. Describe how some plants change due to a change in weather. Observe how temperature affects the sprouting of seeds. Describe some ways animals change during the different seasons. Describe how animals prepare for the different seasons. Identify things that people can do to cool off or warm up. Identify the changes water goes through when heated up or cooled off. Use the movement of air to move objects. Use the sunlight to heat 	<p>Classwork and Observation</p> <p>Project Assessment Suggestions:</p> <ol style="list-style-type: none"> Draw a picture of and label each season. Draw a tree throughout the seasons. Place water in different temperatures. Make predictions the outcome of each. Make a boat out of aluminum and place it in a pool of water. Have children use their breath to move the air to move the boat. Place a 	<p><u>Silver Burdett Ginn Science Discovery Works: Weather and Seasons</u></p> <p>Windows on Science: Water and Ice</p> <p>Lakeshore Learning Kit</p> <p>Summer (Reading Rainbow 1-800-228-4630)</p> <p><i>Bringing The Rain To Kapiti Plain</i> by Verna Aardema</p> <p><i>Around the Oak</i> by Gerda Muller</p> <p><i>Ships</i> by Kevin Boone</p>	<p>Earth and Space Science</p> <p>E.S. 2</p> <p>Understand that air is a mixture of gases that is all around us and that wind is moving air.</p> <p>E.S.3</p> <p>Describe weather changes from day to day and over the seasons.</p> <p>E.S.4</p> <p>Recognize that the sun supplies heat and light to the earth and is necessary for life.</p> <p>Life Science</p> <p>L.S. 7</p> <p>Recognize changes in appearance that animals and plants go</p>

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	1. What are the four seasons? 2. How do animals adapt to the weather? 3. How do plants change through the seasons? 3. How are the seasons different?	objects. <u>Vocabulary:</u> Weather, Summer, Winter, Fall, Autumn, Spring, season, hibernation, migrate, temperature, measure, shade, heat, thermometer, wind, air, heat	Hershey Kiss on a piece of Paper in the sun. Make predictions on what will happen to the chocolate as it sits in the sunlight.		through as the seasons change.
Life Cycles	<u>Content</u> 1. Classify plants and animals. 2. Describe the life cycle of a chicken. 3. Describe the life cycle of a butterfly. 4. Identify characteristics amongst animals and their offspring. <u>Essential Questions</u> 1. What is a plant? 2. What is an animal? 3. How are offsprings like their parents?	The students will be able to: 1. Draw the life cycle of a chicken. 2. Label the different stages of a chicken and a butterfly. 3. Describe how an egg transforms into a chick. 4. Describe how an incubator helps an egg develop into a chick. 5. Match adult animals to their offspring. <u>Vocabulary:</u> Egg, shell, yolk, incubator, incubate, offspring, adult, chrysalis, cocoon, seed, roots, seedling, living, non living, hen, rooster, metamorphosis, chick, chicken, membrane, candling	Classwork and Observation Project Assessment Suggestions: 1. Place 12 eggs in an incubator and watch the progress over a 21-day period. 2. Create a report on the life cycle of a chick. 3. Match adult animals to their offspring.	<i>Science Sequencing Activities</i> by Joy Evans and Jo Ellen Moore <i>4-H Embryology Teacher Guidebook</i> Lakeshore Learning Kit An Egg is an Egg by Nicki Weiss <i>Where Do Chicks Come from?</i> by Amy E. Sklansky <i>The Little Yellow Chicken</i> by Joy Cowley <i>The Egg: A First Discover Book</i> <i>Egg: A Photographic Story of Hatching</i> by Robert Burton <i>Chicks and Chickens</i> by Gail Gibbons	Life Science L.S.1 Recognize that animals (including humans) and plants are living things that grow, reproduce and need food, air and water. L.S.3 Recognize that plants and animals have life cycles, and that life cycles vary for different living things. L.S.4 Describe ways in which many plants and animals closely resemble their parents in observe

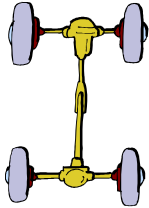
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	4. How does a chick grow into a chicken?				appearance.
	<p><u>Content</u></p> <ol style="list-style-type: none"> Identify what products can be recycled. Describe how recycled products can help the environment. List ways people can recycle in their homes and daily lives. Describe characteristics of natural materials. Identify the safe and proper use of tools and materials. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What is recycling? 	<p>The students will be able to:</p> <ol style="list-style-type: none"> Identify items in the classroom that can be recycled. Participate in a paper-recycling program. Name items that can be recycled. Describe how recycling paper helps the environment. Sort items by either being natural or man-made. Use tools and materials the correct way when completing projects. <p>Vocabulary: Recycle, compost, waste, paper, aluminum, trash, environment, nature, man made, wood, cotton, wool, fur, plastic, Styrofoam</p>	<p>Classwork and Observations</p> <p>Project Assessment Suggestions:</p> <ol style="list-style-type: none"> Place a paper-recycling container in each classroom. At the end of each week, collect the paper and bring it to a recycling center. Create and organize a school clean up day. 	<p>www.epa.gov/kids/garbage.htm</p> <p><i>Recycle Everyday</i> by Nancy Elizabeth Wallace</p> <p><i>Earth Day</i> by Trudi Strain Trueit</p> <p><i>Let's Get Ready for Earth Day</i> (Welcome Books)</p> <p><i>Earth Book for Kids</i> by Linda Schwartz</p> <p><i>Garbage and Recycling</i> By Rosie Harlow and Sally Morgan</p> <p><i>Recycling by Rhonda</i> Lucas Donald</p> <p><i>Bob's Recycling Day</i> by Annie Auerbach and Vince Garran</p> <p><i>Trash and Recycling</i> by Stephanie Trumball and Christyn Fox</p>	<p>Physical Science P.S.1 Sort objects by observable properties such as size, shape, color, weight, and texture.</p> <p>Technology/Engineering T.E.1</p> <p>1.1 Identify and describe characteristics of natural materials (e.g., wood, cotton, fur, wool) and human-made materials(e.g., plastic, Styrofoam).</p> <p>1.2</p>

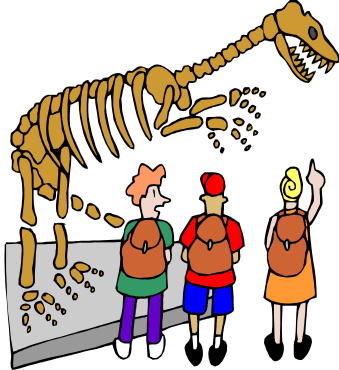
Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
	<p>2. Where does paper come from?</p> <p>3. What can be recycled?</p>		<p>3. Give students a list of items and have them sort the man-made and natural materials.</p>		<p>Identify and explain some possible uses for natural materials (e.g., wood, cotton, fur, wool) and human-made materials (e.g., plastic, Styrofoam).</p> <p>1.3 Identify and describe the safe and proper use of tools and materials (e.g., glue, scissors, tape, ruler, toothpick, straws, spools) to construct simple structures.</p>




SUBJECT MATTER: Science**Grade: 2**

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Matter: Solids, Liquids, and Gases	<ol style="list-style-type: none"> Properties of solids, liquids, and gases Changeable states of matter Influences of heat and cold upon matter <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What properties describe a solid? What properties describe a liquid? What properties describe a gas? How does heat and cold change the properties of solids, liquids, and gases? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> Describe the properties of solid objects and sort them on the basis of properties of size, shape, color, and texture. Describe the properties of liquids and sort them on the basis of properties of color and texture. Describe the properties of gases. Classify objects and substances as solids, liquids, or gases. Explain how heat and cold can change the properties of solids, liquids, and gases. <p>Vocabulary: Air, condensation, evaporate, evaporation, gas, heat, ice, liquid, matter, melt, object, rain, shape, solid, space, texture, water, water vapor</p>	<p>Project Assessment: Each student will create a collage or book of magazine pictures of solids, liquids, and gases with a written explanation of the characteristics of each.</p>	<p><u>Discovery Works: Solids, Liquids, and Gases</u> Silver Burdett Ginn Science</p> <p>Literature <u>Air is All Around You</u> by Franklyn M Branley <u>Make It Change</u> by David Evans and Claudette Williams <u>New True Book of Matter</u> by Fred Wilkin <u>Solids and Liquids</u> by David Glover <u>Emmett's Snowball</u> by Ned Miller <u>Gobs of Goo</u> by Vicki Cobb <u>Liquids in Action</u> by Peter Mellet and Jane Rossiter</p>	<p>Physical Science 2</p> <p>Earth Science 2</p>


Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Simple Machines	<ol style="list-style-type: none"> Types of simple machines and how they work. Complex machines Balancing weights <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What are the six types of simple machines and how do they work? How do simple machines make our work easier? What is the difference between simple and complex machines? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> Sort and categorize everyday objects by examples of simple machines. Explain how simple machines work. Explain how machines make work easier. Sort simple and complex machines and explain the differences. Construct and demonstrate simple machines in the classroom. Design a lever and manipulate the fulcrum to balance weights Research how simple machines have changed our lives over the years. Demonstrate the safe use of tools to make a simple machine. Describe how people use parts of their bodies as tools and compare them with the ways animals use their body parts. <p>Vocabulary: lever, pulley, inclined plane,</p>	<p>Project Assessment: Each student will bring in an item from home that illustrates a simple machine. They will fill in a form telling what type of simple machine it is and how it makes work easier. They will each present it to the class and demonstrate how it works.</p> 	<p>http://Edheads.org/activities/simple-machines www.mikids.com/smachines.htm www.brainpop.com/tech/simplemachines/</p> <p>Lego Simple Machine Sets: Gears, Wheels and Axles, Pulleys, Levers</p> <p>Wooden models of simple machines</p> <p>Literature Books by Sally M. Walker and Roseann Feldmann: <u>Wheels and Axles</u> <u>Pulleys</u> <u>Levers</u></p>	<p>Physical Sciences 4</p> <p>Physical Sciences 5</p> <p>Technology/Engineering 1.1, 2.1, 2.2</p>

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		wheel, axle, wedge, screw, work, force, fulcrum, compound machine, gears, gravity, friction, pulleys			
Rot Squad: Soil and Decomposition	<ol style="list-style-type: none"> Composition of soil Decomposition Fossils <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What materials make up soil? How do earthworms help in the formation of soil? How are fossils formed? What do fossils tell us about our past? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> Use a hand lens to observe and describe the components and properties of a sample of soil. Compare soil samples on the basis of color, particle size, and the ability to hold water. Prepare different soil mixes using commercial potting soil, worm compost, and sand. Compare growth of plants in each type of soil. Observe a worm farm and explain the role of earthworms in soil formation. Construct individual compost containers and observe and describe the decomposition that is occurring. Make a fossil print using plaster of paris and relate it to how real fossils are formed. Describe how fossils provide us with information about the past. 	<p>Project Assessment: Each student will construct individual compost containers. They will observe and record the changes they have observed twice a week. They will include pictures and written descriptions.</p>	<p><u>Discovery Works: Earth Through Time</u> Silver Burdett Ginn Science</p> <p>Literature <u>Fossils Tell of Long Ago</u> by Aliki Fossils by Allan Roberts Dinosaur Bones by Aliki</p> 	<p>Earth Science 1 Life Science 2 Life Science 5 Physical Science 1</p>

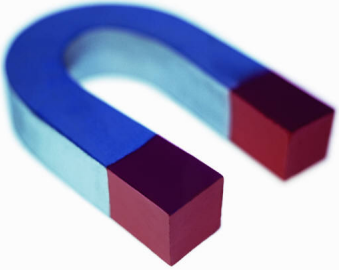
Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
		Vocabulary: fossil, decomposition, compost, imprints, fossil remains, soil			
Living Spies : Living Things and Their Habitats	<ol style="list-style-type: none"> 1. Characteristics of living and nonliving things 2. Basic needs of living things <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> 1. What are the differences between living, once-living, and nonliving things? 2. What are the basic needs of living things? 3. How does an animal's habitat provide for its basic needs? 	<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Build a terrarium, observe and discuss the needs of living things. 2. Examine and sort a variety of living, once-living, and nonliving things. Describe the differences among them. 3. Identify the ways in which a living thing's habitat provides for its basic needs. 4. Observe and record the names of plants and animals around our school. Describe how it may change during different seasons. <p>Vocabulary: beaks, bills, desert, erosion, habitat, living, nonliving, once-living, resource, riverbed, roots, seedlings, shelter, spines, stems, swamp, terrarium, woodland</p>	<p><u>Project Assessment</u> Each student will choose an animal and create a poster showing its habitat and how that habitat provides for its basic needs (food, water, air, and shelter).</p> 	<p><u>Discovery Works: Interactions of Living Things</u> Silver Burdett Ginn Science</p> <p><u>How Nature Works</u> by David Burnie</p> <p><u>The Curiosity Club: Kids Nature Activity Book</u> by Allene Roberts</p> <p><u>Nature With Children of All Ages</u> by Edith A. Sisson</p> <p><u>Science in Your Backyard</u> by David Gardner and David Webster</p> <p>Literature <u>Mousekin's Lost Woodland</u> by Edna Miller <u>One Small Square: Backyard</u> by Donald M. Silver <u>The Wonderful Woods</u> by Rose Wyler <u>Desert Giant: The World of the Saguaro Cactus</u> by Barbara Bash <u>And So They Build</u> by Bert Kitchen <u>Ant Colony</u> by Heiderose and Andreas Fischer-Nagel</p>	<p>Life Science 6</p> <p>Life Science 7</p> <p>Life Science 8</p>

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
				<u>Beavers</u> by Emilie U. Lepthien <u>Farewell to Shady Glade</u> by Bill Peet <u>Desert Life</u> by Barbara Taylor	



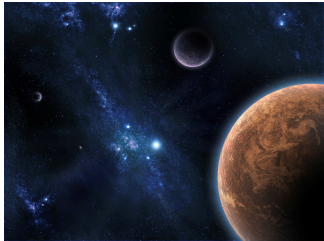

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
<p>Sun, Moon and Earth</p> <p>The Sun, the Moon and Earth have different physical characteristics and regular movements that result in daily, monthly, and yearly patterns.</p>	<p><u>Content</u></p> <ol style="list-style-type: none"> Identify the physical features of the Sun and the Moon. Understand the rotation and revolution of Earth and the moon. Name the Earth’s seasonal changes. Describe what causes solar and lunar eclipses. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What is being on the Moon like? What is the Sun like? How does the Earth move? What causes seasons? 	<p>The student will be able to:</p> <ol style="list-style-type: none"> Recognize that the Earth is the third planet from the Sun in our solar system, which includes planets, stars and other moons. Recognize that the Earth revolves around (orbits) the sun in a year’s time and that the earth rotates on its axis once approximately every 24 hours. Make connections between the rotation of the Earth and day/night, and the apparent movement of the Sun, Moon and stars across the sky. Describe the changes that occur in the observable shape of the Moon over the course of a month. 	<p>Class work and Observations</p> <p><u>Project Assessment</u></p> <p>Journal entries</p> <p>Diagrams</p> <p>Rubrics</p>	<p><u>Silver Burdett Ginn Science Discovery Works: Characteristics of Living Things</u></p> <p>http://pan.tcnj.edu/plant.htm</p> <p>Videos: Bill Nye – Outer Space – Way Out There A Closer Look at the Moon A Closer Look at the Sun and Stars</p> 	<p>Earth and Space Science</p> <p>ES 13 Earth is part of solar system</p> <p>ES 14 Movement of the solar system</p> <p>ES 15 Phases of the Moon</p>


Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Plants and Soil	<p><u>Content</u></p> <ol style="list-style-type: none"> Identify the characteristics and structures of soil Identify the characteristics and structures of plants. Understand the roles of each structure in the life cycle of a plant. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What makes an experiment successful? What are the different variables that affect the life cycle of a plant? How do the seasons affect plant growth? 	<p>The student will be able to:</p> <ol style="list-style-type: none"> Recognize the different properties of soil. Discuss the ability of soil to support the growth of plants. Identify the leaves, roots, flowers, stem and bark. To understand the roles of each structure in the life cycle of a plant. Understand the importance of plants in the transfer of energy within a food chain. 	<p>Journal entries</p> <p>Creating and labeling a plant model</p> <p>Observation</p> <p>Seed Diagram</p> <p>Rubrics</p>	<p>Videos: Magic School Bus Goes to Seed Magic School Bus Gets Planted Eyewitness – Plants, How Plants Grow</p>	<p>Life Science</p> <p>LS 1 Plant classification</p> <p>LS 2 Plant structures and uses</p> <p>LS 3 Plant life cycle</p> <p>LS 5 Effects of variables on plants(e.g. climate, environment)</p> <p>LS 6 Adaptations of plants</p> <p>LS 11 Photosynthesis</p>



Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
<p>Magnetism and Electricity</p> <p>Magnetism and electrical energy are related; a magnetic field can produce electricity, and electric current can produce a magnetic field.</p>	<p><u>Content</u></p> <ol style="list-style-type: none"> Describe the properties of magnets. Understand the forms of electrical energy. Understand electric circuits. Identify sources of electric currents Understand how electric current is changed into useful energy. <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What is the relationship between magnetism and electrical energy? How is electricity useful? 	<p>The student will be able to:</p> <ol style="list-style-type: none"> Apply principles of magnetism to real-life situations. Classify objects as either attracted by or not attracted by a magnet. Infer the north and south poles of a magnet by the magnet's behavior. The difference between open and closed circuits. How magnetism can be created through an electrical field. 	<p>Make a magnet</p> <p>Label diagram</p> <p>Create a closed circuit</p> <p>Rubrics</p>	<p>http://www.eduref.org/cgi-bin/printlessons.cgi/Virtual/Lessons/Science/Physics/PHS0023.html</p> <p>Electricity – batteries, bulbs, wires etc.</p> <p>Magnet kit</p> <p>Video: The Magic of Magnetism</p> <p>Getting to Know Electricity Bill Nye – Electrical Current</p>	<p><u>Physical Sciences</u></p> <p><u>PS 4</u> Forms of energy</p> <p><u>PS 6</u> Electrical Energy</p> <p><u>PS 9, 10</u> Magnetic Energy</p>




SUBJECT MATTER: Science

Grade: 4

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Weather	<p><u>Content</u></p> <ol style="list-style-type: none"> Weather and climate Changes in the Earth's atmosphere that affect weather Weather formation and prediction Weather and global patterns Weather and the water cycle Construct a weather measuring instrument <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> What is weather? What is the difference between weather and climate? How do changes in the Earth's atmosphere, e.g. air temperature, 	<p>Students will understand that:</p> <ol style="list-style-type: none"> Weather changes from day to day, but the climate of a region usually remains constant. That weather changes are dependent upon changes in air pressure, wind direction, and fluctuations in water vapor content. Fluctuations in the water vapor content of the air result in variations in humidity, clouds, and precipitation. Clouds of different sizes, shapes, and altitudes provide clues about changes in weather. Weather maps include information on fronts and air masses. An air mass is a body of air that has the same general temperature and air pressure throughout. A front is a place where two different types of air masses meet. Weather maps show patterns 	<p>Pre-assessment</p> <p>Investigations and activities</p> <p>Class participation in activities</p> <p>Class discussion</p> <p>Written reports of activities/experiments</p> <p>Summary writing</p> <p>Written quizzes</p> <p>Chapter/unit tests</p> <p>Unit projects</p>	<p>Discovery Works, Silver Burdett Ginn Science</p> <p>Discovery Works Science Notebook Assessment Guide Teacher Resource Book Standardized Tests</p> <p>Models of weather instruments, e.g. barometer, anemometer</p> <p>Investigations weather kits</p> <p>Weather charts for data collection</p> <p>Literature <u>Lightning and Other Wonders of the Sky</u> by Q. L. Pearce <u>The Old Farmer's Almanac</u> by Robert B. Thomas <u>Newspaper weather maps</u> <u>Professor Fergus Fahrenheit and His Wonderful Weather Machine</u> by Candace Groth-Fleming <u>The Third Planet</u> by Sally Ride and Tam O'Shaughnessy</p>	<p>Earth and Space Science 6, 7, 8 & 9</p> <p>Technology/Engineering 1.1, 1.2, 2.1-2.4</p>  

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
	<p>moisture, precipitation, and wind speed and direction, affect daily weather conditions?</p> <p>4. How are atmospheric conditions able to predict local weather?</p> <p>5. How are dangerous storms, i.e., tornadoes, hurricanes, and thunderstorms, formed?</p>	<p>that can be used to make weather predictions.</p> <p>9. Seasonal climate changes are the result of several factors including the amount and intensity of sunlight and the tilt of Earth's axis.</p> <p>Students will:</p> <ol style="list-style-type: none"> 1. Construct a barometer. 2. Use a collection of weather instruments, including thermometer, barometer, rain gauge, hygrometer, and anemometer. 3. Measure different forms of precipitation. 4. Collect daily temperature and precipitation data and graph changes. 			
Matter	<p><u>Content</u></p> <ol style="list-style-type: none"> 1. Properties of matter 2. Classification of matter 3. Atoms and molecules (the particles of matter) and their arrangement in matter 4. Matter can 	<p>Students will understand that:</p> <ol style="list-style-type: none"> 1. Matter is anything that has mass and volume. 2. Matter can be described and classified by its properties. 3. The properties of matter are determined by the kinds and arrangements of its particles. 4. Particles of matter are composed of atoms and molecules. 5. Atoms and molecules are the 	<p>Pre-assessment</p> <p>Investigations and activities</p> <p>Class participation in activities</p> <p>Class discussion</p> <p>Written reports of activities/experiments</p>	<p>DiscoveryWorks, Silver Burdett Ginn Science</p> <p>DiscoveryWorks Science Notebook</p> <p>Assessment Guide</p> <p>Teacher Resource Book</p> <p>Standardized Tests</p> <p>Molecule models</p> <p>Investigations materials kits for</p>	<p>Physical Sciences 1, 2, and 3</p> <p>Technology/Engineering 1.1, 1.2, 2.3, and 2.4</p>

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
	<p>change its state</p> <p>5. Matter can be described by physical and chemical properties</p> <p><u>Essential Questions</u></p> <p>1. What makes up matter?</p> <p>2. How can matter be described and classified?</p> <p>3. What are the particles of matter, atoms and molecules, and how do their arrangements change matter?</p> <p>4. What are the three states of matter?</p> <p>5. How can heat or the lack of it change matter?</p> <p>6. How can matter change physically and chemically?</p>	<p>smallest units of matter.</p> <p>6. Mass and volume, which are properties of matter, can be measured.</p> <p>7. The metric system is used for measurement in science.</p> <p>8. The particles of matter are in constant motion.</p> <p>9. Matter exists in three states – solid, liquid, and gas.</p> <p>10. Matter can change state when heat is gained or lost, e.g., water can be changed from one state to another (evaporation, condensation, freezing, and melting)</p> <p>11. Matter can be described by physical and chemical properties.</p> <p>12. Matter can change physically in size, shape, or state.</p> <p>13. Matter can change chemically to form a different kind of matter.</p>	<p>Summary writing</p> <p>Written quizzes</p> <p>Chapter/unit tests</p> <p>Unit projects</p>	<p>matter</p> <p>Literature</p> <p><u>Discovering More Science Secrets</u> by Sandra Markle</p> <p><u>Sugaring Time</u> by Kathryn Lasky</p> <p><u>Attaboy, Sam!</u> by Lois Lowry</p> <p><u>Janice VanCleave’s 200 Gooney, Slippery, Weird, and Fun Experiments</u> by Janice Cleave (for teachers)</p> <p>Materials by Sally Morgan</p> <p>Matter by Christopher Cooper (Dorling Kindersley)</p> <p><u>Marie Curie</u> by Leonard Everett Fisher</p> <p><u>From Glasses to Gases</u> by Dr. David Darling</p> <p><u>The Big Balloon Race</u> by Eleanor Coerr</p>	 

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Animals	<p><u>Content</u></p> <ol style="list-style-type: none"> The basic needs of all animals Similarities and differences among animals Structural and behavioral adaptations of animals Classification of animals as vertebrates and invertebrates The five kingdoms of organisms Major stages in the life cycle of the frog and the butterfly The effect of environment on animals <p><u>Essential Questions</u></p> <ol style="list-style-type: none"> How do animals meet their four basic needs? How do adaptations help animals meet 	<p>Students will understand that:</p> <ol style="list-style-type: none"> There are similarities and differences among animals. All animals share four basic needs: food, water, shelter, and maintaining body temperature within a certain range. Structural adaptations, e.g. teeth, claws, or body coverings, help animals meet their needs. Behavioral adaptations help animals meet their needs. Animals can have instinctive or learned behaviors. Living things are called organisms. Organisms can be classified by their physical and behavioral characteristics. There are five large categories, or kingdoms, of organisms: plant, animal, fungus, protist, and moneran. Animals can be classified as vertebrates or invertebrates. Vertebrates include fish, reptiles, amphibians, birds, and mammals. Vertebrates differ by how they maintain their body 	<p>Pre-assessment</p> <p>Investigations and activities</p> <p>Class participation in activities</p> <p>Class discussion</p> <p>Written reports of activities/experiments</p> <p>Summary writing</p> <p>Written quizzes</p> <p>Chapter/unit tests</p> <p>Unit projects, e.g., Animal report</p>	<p><u>DiscoveryWorks</u>, Silver Burdett Ginn Science</p> <p><u>DiscoveryWorks</u> Science Notebook Assessment Guide Teacher Resource Book Standardized Tests</p> <p>Wildlife Fact File</p> <p>Animal periodicals, e.g. “National Geographic World,” “Ranger Rick”</p> <p>Animal Field Guides</p> <p>Literature <u>Snakes and Other Reptiles</u> by Mary Elting <u>Bugs: Stingers, Suckers, Sweeties, Swingers</u> by Liz Greenbacker <u>Crinkleroot’s Book of Animal Tracking</u> by Jim Aronsky <u>No Bones: A Key to Bugs and Slugs, Worms and Ticks, Spiders and Centipedes, and Other Creepy Crawlies</u> by Elizabeth Shepard</p>	<p>Life Science (Biology) 1, 3, 4, 6, 7, 8, and 10</p> <p>Technology/ Engineering 1.1, 1.2, 2.1, 2.2, 2.3, and 2.4</p>   

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
	<p>their needs?</p> <p>3. What are the structural and behavioral adaptations of animals.</p> <p>4. How are living things, or organisms, classified?</p> <p>5. How are animals classified?</p> <p>6. What is the difference between a vertebrate and an invertebrate?</p> <p>7. What are the life cycles of the frog and the butterfly?</p> <p>8. How do changes in environment, e.g. drought, cold, effect animals?</p>	<p>temperature, how they breathe, and their body coverings.</p> <p>12. Invertebrates are classified by body structures, how they feed, and how they move.</p> <p>13. As they grow and mature, the frog and the butterfly change in form as they go through metamorphosis.</p> <p>14. Global warming and climate change have effects on animals.</p>		<p><u>The Random House Book or How Nature Works</u> by Steve Parker</p>	